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Agency / Organization

Federal Railroad Administration

Title

FRA Report of Interview

Bridge Controls Engineer

FEDERAL RAILROAD ADMINISTRATION
Report of Interview

Person Interviewed

NAME: Hans J. Heidenreich
ADDRESS: Heidenreich Associates, Inc.
** P I I **
CITY: ** P I I **
STATE: ** P I I **
ZIP: ** P I I **

PHONE: (203) ** P I I ** E-Mail: ** P I I **

OCCUPATION: Control Systems Engineer

Date of Interview: January 18, 2013

Place of Interview: Via Telephone (Fiorenzo & Killingbeck were together on speaker phone)

Others Present: Les Fiorenzo, FRA Regional Administrator

Interviewed By: David R. Killingbeck, FRA Chief Engineer - Structures

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The above person was interviewed relevant to an investigation being conducted by the Federal Railroad Administration (FRA). The following statements, and/or comments, are provided as part of this investigation, and although not verbatim, accurately and fully reflect the statements and/or comments of the participant.

This interview was conducted as follow-up to a previous telephonic interview of Mr. Hans Heidenreich that was conducted in conjunction with the National Transportation Safety Board (NTSB) on December 13, 2013 and subsequently transcribed. The purpose of this interview was to gather additional pertinent information relative to the Conrail Paulsboro, NJ derailment that occurred on November 20, 2013. This accident has been assigned FRA File # HQ2012-39.

Mr. Heidenreich is Conrail's contract engineer responsible for the development and integration of the programmable logic controller (PLC) based control system utilized for the automation of the Paulsboro swing bridge.

Mr. Heidenreich stated that he accompanied Mr. Ryan Hill, Conrail Supervisor of Structures, to the Paulsboro movable bridge on two occasions for the purpose of troubleshooting an apparent increase in the number of operational failures. Mr. Heidenreich estimated that on November 13, 2012, he was at the bridge from 10:30 AM until noon, and that on November 20, 2012 he was there from 1:00 to 2:00 PM.

On several occasions, the bridge had failed to open automatically following the passage of a train, causing the PLC-based control system to lock up. During his field visits, Mr. Heidenreich tested

the operation of the bridge, cycling it through numerous closing and opening cycles without producing a failure. No trains operated over the bridge during these tests. Suspecting that the intermittent failure might be related to the actual passage of trains, on November 20, 2012 Mr. Heidenreich modified the PLC program logic in order to limit the time period during which the PLC supervisory logic looked at the inputs from the slide lock actuators limit switches. His hypothesis was that the traction forces from the locomotive wheels might be trying to move the slide locks causing the loss of appropriate feedback signals from one or more of the limit switches. Upon learning on November 21, 2012 that the program logic modification had been ineffective, Mr. Heidenreich suggested to Ryan Hill that since it was only about ten days until bridge operations would cease for the winter, Ryan should talk to the marina and try to get their concurrence to close and lock the bridge until Conrail could have its electrician check out the wiring for possible Hurricane Sandy related water damage.

Mr. Heidenreich stated that he was of the opinion that the slide locks were not driven at the time of the accident, based on the red signal indications, and without the slide rails engaged, the end of the bridge was able to slew sideways misaligning the running rails resulting in the derailment.